

## CLAIMS

1. A magnetic encoder device comprising:

a magnetic encoder including a permanent magnet fixed  
5 to a rotating body and a magnetic field detecting element  
which faces the permanent magnet through an air gap and is  
fixed to a fixed body, and

a signal processing circuit which processes a signal  
from the magnetic field detecting element, wherein

10 the rotating body has a ring shape,

the permanent magnet has a ring shape, is inscribed in  
and fixed to an inner circumferential side of the rotating  
body and magnetized in parallel to a direction  
perpendicular to a center axis of the rotating body,

15 the fixed body has a circular outer circumference and  
a cavity and is disposed at an inner circumferential side  
of the permanent magnet through the air gap, and

the magnetic field detecting element is disposed on an  
outer circumferential side of the fixed body through the  
20 permanent magnet and the air gap.

2. The magnetic encoder device according to Claim 1,  
wherein

the permanent magnet has parallel anisotropy and is  
25 magnetized to two poles.

3. The magnetic encoder device according to Claim 1 or 2,  
wherein

the rotating body is made of a magnetic material.

5 4. The magnetic encoder device according to any one of  
Claims 1 to 3, wherein

the fixed body is made of a magnetic material.

5. The magnetic encoder device according to Claim 4,  
10 wherein

the magnetic material is made of sintered soft  
magnetic powdered material.

6. The magnetic encoder device according to Claim 4,  
15 wherein

the magnetic material is formed by laminating a soft  
magnetic material.

7. The actuator having a cavity and including an  
20 electronic motor and an electronic brake, wherein

the actuator comprises the magnetic encoder according  
to Claim 1.

8. The actuator according to Claim 7, wherein

25 the fixed body of the magnetic encoder also functions  
as a portion of a magnetic yoke of the electronic brake.

9. The actuator according to Claim 7, wherein  
the fixed body of the magnetic encoder has a structure  
fitted to a magnetic yoke of the electronic brake.

5 10. The actuator according to Claim 7, wherein  
a magnetic shield is disposed between the electronic  
motor or the electronic brake and the magnetic encoder.

11. The actuator according to Claim 7, wherein  
10 a lead hole through which a power supply lead of the  
electronic brake passes is formed in the fixed body of the  
magnetic encoder.

12. The actuator according to Claim 7, wherein  
15 a notch portion through which a power supply lead of  
the electronic brake passes is formed in an inner  
circumferential side of the fixed body of the magnetic  
encoder.

20 13. The actuator according to Claim 11 or 12, wherein  
the lead hole and the notch portion are disposed on a  
line for connecting a center of the fixed body to the  
magnetic field detecting element mounted on the fixed body.

25 14. The actuator according to Claim 11, wherein  
the lead hole is disposed at an inner circumferential  
side of the fixed body.